REMARKS

Based on the above amendments and the following remarks, this application is deemed to be in condition for allowance and action to that end is respectfully requested.

Disposition of Claims in Office Action

Claims 1- 24 are pending in the application

Claims 1- 10 and 12-24 stand rejected.

Claim 11 is objected to.

Summary of Amendments to the Claims

Claims 1-24 remain pending in the application.

Claims 25- 37 are new.

Applicant believes that no new matter has been added to the claims.

Response to Objection to the Specification

The Examiner objected to the specification because of minor grammatical errors. Applicant has now corrected these errors. Accordingly, withdrawal of this objection is respectfully requested.

Response to Claim Rejections - 35 U.S.C. § 103

The Examiner rejected the claims under 35 U.S.C. § 103 as follows:

- Claims 1-7, 10, 12-21, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zare et al. (U.S. Patent No. 6,532,071) (hereinafter Zare) in view of Collins et al. (U.S. Patent No. 5,291,426) (hereinafter Collins).
- Claims 8, 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zare et al. (U.S. Patent No. 6,532,071) (hereinafter Zare) in view of Collins et al. (U.S. Patent No. 5,291,476) (hereinafter Collins) and further in view of Karkar et al. (U.S. Patent No. 4,745,279) (hereinafter Karkar).

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art references (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on an applicant's disclosure in the specification. *See In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Applicant respectfully submits that there is no suggestion or motivation, either in the Zare, Collins and Karkar references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the cited references.

In an exemplary embodiment, the Applicant's invention is directed to a method for determining an exponential decay rate of a signal in the presence of noise, the method comprising: receiving an exponentially decaying signal from a detector; digitizing the signal to form a first array of data points; estimating a baseline value of the signal by averaging a final fraction of the data points; subtracting the baseline value from the first array to generate a second array; identifying a last data point on the second array occurring before a negative or nil valued data point on the second array; scaling an ordinate value of the last data point by a factor greater than unity to determine a new first data point for a baseline fit on the first array; fitting remaining data on the first array to a straight line to determine an estimate for a sloping baseline and the noise; subtracting the straight line from the data points to establish a resulting array; identifying a last data point on the resulting array occurring before a negative or nil valued data point on the resulting array; performing a logarithmic transformation of the resulting array up to the last data point on the resulting array; and determining the decay rate of the signal.

Zare, on the other hand, is directed to an analog method of determining decay rates in the presence of noise and does not detail a method of eliminating low frequency noise for a digitally derived exponential time signal. More importantly, Zare specifically discourages/teaches away from using such digital methods. For example, Zare, at column 8, lines 16-24, states the following:

> The problems inherent in the digitization process render digital processing incompatible with CRDS when high sensitivities are desired. In particular, the theoretical shot-noise limit of CRDS can not be realized when using digital signal processing to determine the decay rate $1/\tau$ of decay signal 33. This realization lies at the foundation of the present invention.

Regarding Collins, Collins is directed to digitized spectral data and not data in a time domain such as exponential ring-downs as the claimed invention. Regarding Karkar, the Examiner merely cites to Karkar to illustrate the removal of a DC offset. Thus, Karkar does not make-up for the deficiencies of the Zare and Collins references. A careful reading of the cited references yield other differences between the claimed invention and the cited references.

Based on the foregoing, Applicant respectfully submits that the claimed invention is novel and unobvious over the applied prior art. Accordingly, the Examiner's rejections under 35 U.S.C. § 103(a) are overcome and withdrawal thereof is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance and accordingly, allowance of the application is respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place the case in condition for final allowance, then it is respectfully requested that such amendment or correction be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, the Examiner is invited to telephone the undersigned.

The Commissioner is authorized to charge all required fees, including any extension and excess claim fees, or credit any overpayment to Deposit Account 06-0923. Applicant claims small entity status. See 37 C.F.R. 1.27.

Respectfully submitted for Applicant,

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